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09/657,616	09/08/2000	HIROKATSU MIYATA	35.C14776	2679

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EXAMINER

VO, HAI

ART UNIT PAPER NUMBER

1771

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/657,616

Applicant(s)

MIYATA, HIROKATSU

Examiner

Hai Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 44-48 and 51-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 44-48 and 51-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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1. The art rejections and double patenting rejections are maintained.

### ***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 44-48, and 52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of copending Application No. 09/478,884 in view of Katz (US 6,423,770) and Kubo et al (US 5,262,515). Claim 2 of copending Application No. 09/478,884 teaches every element of the presently claimed subject matter except the first portion containing a polyimide that has a sequence of two or more adjacent methylene groups in a repeating unit of the main chain of the polyimide. Katz, however, teaches a silicate material with designated porosity has many applications in the optical and electronics industries. Katz teaches the porous silicate being used in combination of the fluorinated polyimide substrate (example 5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ polyimide film for the first portion of the

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compending Application No. 09/478,884 for better strength and improved structural stability.

Kubo teaches a fluorinated polyimide resin with a formula having a sequence of two or more adjacent methylene groups in a repeating unit of the main chain of the polyimide (column 8, lines 65 et seq.). Kubo teaches the fluorinated polyimide resin exhibiting high heat and moisture resistance, low refractive index and low dielectric constant (column 1, lines 10-15). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the polyimide resin with a formula having a sequence of two or more adjacent methylene groups in a repeating unit of the main chain of the polyimide for the first portion of the compending Application No. 09/478,884 to provide an optical article with high heat and moisture resistance, low refractive index and low dielectric constant.

Claim 2 of compending Application No. 09/478,884 does not specifically disclose the first portion comprising a Langmuir-Blodgett film. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the structure of compending Application No. 09/478,884 as modified by Katz and Kubo is identical to or only slightly different than the claimed structure prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity. The modified structure comprises a first portion containing a polyimide, and a second portion containing silicon and formed on the first portion. The second portion has tubular pores which are aligned uniaxially and extend a boundary surface between the first portion and the second portion. The

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polyimide has a sequence of two or more adjacent methylene groups in the repeating unit present in a main chain of the polyimide. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with copending Application No. 09/478,884 as modified by Katz and Kubo.

4. Claim 51 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of copending Application No. 09/478,884 in view of Katz (US 6,423,770) and Kubo et al (US 5,262,515), as applied to claim 44 above, further in view of Ozin et al (US 6,027,666). Claim 2 of copending Application No. 09/478,884 does not specifically disclose the pore structure containing a surfactant. Ozin, however, discloses a mesostructured material for use in optoelectronics having a film of tubular mesopores formed on a high density polyethylene (HDPE) substrate (column 5, lines 59-64; column 9, lines 22-25). Ozin teaches the mesopores extending parallel to a major surface of the film (claim 24, column 8, lines 20-30). Ozin discloses that the mesostructured material contains silicon (column 7, lines 25-27). Ozin discloses the mesostructured material being formed by hydrolyzing a silicone alkoxide in the presence of surfactant (column 5, lines 26-34). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a surfactant in the pore structure motivated by the desire to control the degree of porosity of the structure.

This is a provisional obviousness-type double patenting rejection.

5. Claim 53 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of copending Application No. 09/478,884 in view of Katz (US 6,423,770) and Malik et al (US 5,637,772). Claim 2 of copending Application No. 09/478,884 teaches every element of the presently claimed subject matter except the first portion containing a polyimide that has a sequence of two or more adjacent methylene groups in a repeating unit of the side chain of the polyimide. Katz, however, teaches a silicate material with designated porosity has many applications in the optical and electronics industries. Katz teaches the porous silicate being used in combination of the fluorinated polyimide substrate (example 5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ polyimide film for the first portion of the copending Application No. 09/478,884 for better strength and improved structural stability.

Malik teaches a fluorinated polyimide resin with a formula having a sequence of two or more adjacent methylene groups in a repeating unit of the side chain of the polyimide (column 5, lines 5-45). Malik teaches the fluorinated polyimide resin exhibiting high thermal stability and low dielectric constant (column 5, lines 58-61). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the polyimide resin with a formula having a sequence of two or more adjacent methylene groups in a repeating unit of the side chain of the polyimide for the first portion of the copending Application No. 09/478,884 to provide an article with higher thermal stability and low dielectric constant.

This is a provisional obviousness-type double patenting rejection.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 44-48, 51 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozin et al (US 6,027,666) in view of Katz (US 6,423,770) and Kubo et al (US 5,262,515). Ozin discloses a mesostructured material for use in optoelectronics having a film of tubular mesopores formed on a high density polyethylene (HDPE) substrate (column 5, lines 59-64; column 9, lines 22-25). Ozin teaches the mesopores extending parallel to a major surface of the film (claim 24, column 8, lines 20-30). Likewise, the tubular pores are aligned uniaxially and extend alongside a boundary surface between the film and the substrate. Ozin discloses that the mesostructured material contains silicon (column 7, lines 25-27). Ozin discloses the mesostructured material being formed by hydrolyzing a silicone alkoxide in the presence of surfactant (column 5, lines 26-34). Ozin does not specifically disclose the substrate containing a polyimide. Katz teaches a silicate material with designated porosity has many applications in the optical and electronics industries. Katz teaches the porous silicate being used in combination of the polyimide substrate (example 5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the

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polyethylene substrate with the fluorinated polyimide film for better strength and improved structural stability.

Kubo teaches a fluorinated polyimide resin with a formula having a sequence of two or more adjacent methylene groups in a repeating unit of the main chain of the polyimide (column 8, lines 65 et seq.). Kubo teaches the fluorinated polyimide resin exhibiting high heat and moisture resistance, low refractive index and low dielectric constant (column 1, lines 10-15). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the polyimide resin with a formula having a sequence of two or more adjacent methylene groups in a repeating unit of the main chain of the polyimide for the substrate of the Ozin invention to provide an article with high heat and moisture resistance, low refractive index and low dielectric constant.

None of the applied references specifically discloses the substrate comprising a Langmuir-Blodgett film. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the structure of Ozin as modified by Katz and Kubo is identical to or only slightly different than the claimed structure prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity. The modified structure comprises a first portion containing a polyimide, and a second portion containing silicon and formed on the first portion. The second portion has tubular pores which are aligned uniaxially and extend a boundary surface between the first portion and the second portion. The polyimide has a sequence of two or more adjacent methylene groups in the

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repeating unit present in a main chain of the polyimide. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Ozin as modified by Katz and Kubo.

8. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozin et al (US 6,027,666) in view of Katz (US 6,423,770) and Malik et al (US 5,637,772). Ozin discloses a mesostructured material for use in optoelectronics having a film of tubular mesopores formed on a high density polyethylene (HDPE) substrate (column 5, lines 59-64; column 9, lines 22-25). Ozin teaches the mesopores extending parallel to a major surface of the film (claim 24, column 8, lines 20-30). Likewise, the tubular pores are aligned uniaxially and extend alongside a boundary surface between the film and the substrate. Ozin discloses that the mesostructured material contains silicon (column 7, lines 25-27). Ozin does not specifically disclose the substrate containing a polyimide. Katz, however, teaches a silicate material with designated porosity has many applications in the optical and electronics industries. Katz teaches the porous silicate being used in combination of the fluorinated polyimide substrate (example 5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ polyimide film for the first portion of the Ozin invention for better strength and improved structural stability.

Malik teaches a fluorinated polyimide resin with a formula having a sequence of two or more adjacent methylene groups in a repeating unit of the side chain of the

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polyimide (column 5, lines 5-45). Malik teaches the fluorinated polyimide resin exhibiting high thermal stability and low dielectric constant (column 5, lines 58-61).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the polyimide resin with a formula having a sequence of two or more adjacent methylene groups in a repeating unit of the side chain of the polyimide for the first portion of the Ozin invention to provide an article with higher thermal stability and low dielectric constant.

### ***Response to Arguments***

9. The double patenting rejections are maintained for the following reasons. Applicant argues that a polyimide without the methylene groups in the repeating unit has lower orienting ability, thereby forming a structure with less regularity as shown in comparative example 1. The arguments are not found persuasive for patentability because nothing specific about the orientation of the polyimide is included in the claims. Accordingly, the double patenting rejections are sustained.
10. The same token is applied to the art rejections over Ozin in view of several references. As pointed out by Applicant, the presence of the specific methylene sequence helps stabilize the orientation of the polymer compound imparted by the rubbing. Therefore, the art rejections will not be withdrawn until the orientation of the polyimide is incorporated in the claims.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485.

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The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HV

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